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EXAMINER
WOOD, WILLIAM H

ART UNIT	PAPER NUMBER
2124	16

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/516,318	SISKA, CHARLES PAUL	
	Examiner	Art Unit	
	William H. Wood	2124	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claims 1-12 have been examined.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: details concerning use of output files.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 12 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim language recites functionally descriptive material without a computer or computer readable media. Suggested corrections include embodying the computer program on a computer readable media.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramsey et al., "Specifying Representations of Machine Instructions" in view of Gupta et al. (USPN 6,385,757).

In regard to claim 1, Ramsey disclosed the limitations:

i) *method for producing code in an architecture description language* (page 496, bracket 3)

ii) *reading an opcode summary table* (page 496, bracket A; page 497, bracket 5 indicates the opcode tables being read for information)

iii) *analyzing said opcode summary table to determine the layout of said opcode summary table* (page 495, bracket B illustrates differing types of instructions which would need to be analyzed in the table in order to be effectively implemented; page 495, bracket 1 indicates instructions differ and therefore to be properly handled the opcode table would need to be analyzed; page 497, bracket 5 indicates organizing the tables in a hierarchy for analysis purposes; page 499, bracket 9 indicates groups)

iv) *generating code for an instruction in architecture description language format* (page 495, section 2)

v) *repeating said generating step for each line on said opcode summary table* (necessary in order to build a complete machine description)

vi) *resulting in an ADL representation of the opcode summary table* (Ramsey's resulting representation is in SLED an ADL)

Ramsey did not explicitly state the method being computerized or in other words automated without a programmer. Gupta demonstrated that it was known at the time of invention to "computerize" a method of reading opcode tables to produce a description language (Gupta: column 4, line 65 to column 5, line 27; column 3, lines 49-54). It would have been obvious to one of ordinary skill in the art at the time of invention to implement Ramsey's ADL with the automated/computerized reading of the opcode table to produce the description language code as found in Gupta's teaching. This implementation would have been obvious because one of ordinary skill in the art would be motivated to produce automated descriptions to reduce design time (Gupta: column 3, lines 32-37).

In regard to claim 2, neither Ramsey nor Gupta explicitly stated the limitation *where the opcode summary table is provided in a spreadsheet*. Official Notice is taken that it was known at the time of invention to use a spreadsheet to represent a table. It would have been obvious to one of ordinary skill in the art at the time of invention to implement Ramsey's and Gupta's combined system of ADL formation with a spreadsheet table. This implementation would have been obvious because one of ordinary skill in the art would be motivated to utilize a highly flexible method of maintaining and changing the instruction set for differing architectures.

In regard to claim 3, neither Ramsey nor Gupta explicitly stated the limitation *where the opcode summary table is provided in a comma separated value format.* Official Notice is taken that it was known at the time of invention to use comma separated value format to represent a table. It would have been obvious to one of ordinary skill in the art at the time of invention to implement Ramsey's and Gupta's combined system of ADL formation with a comma separated value format table. This implementation would have been obvious because one of ordinary skill in the art would be motivated to utilize a highly flexible method of maintaining and changing the instruction set for differing architectures.

In regard to claim 4, Ramsey disclosed the limitations:

i) *method of producing code in an architecture description language format* (page 496, bracket 3)

ii) *reading an opcode summary table* (page 496, bracket A; page 497, bracket 5 indicates the opcode table being composed of several tables, but not any less a table)

iii) *creating a plurality of output files* (clearly a plurality of output files are created, for instance in the event SLED is used to represent the SPARC architecture and then later used to represent some other machine)

iv) *analyzing said opcode summary table to determine the layout of said opcode summary table* (page 495, bracket B illustrates differing types of instructions which would need to be analyzed in the table in order to be effectively

implemented; page 495, bracket 1 indicates instructions differ and therefore to be properly handled the opcode table would need to be analyzed; page 497, bracket 5 indicates organizing the tables in a hierarchy for analysis purposes)

v) *determining the beginning of a group from said opcode summary table* (page 497, bracket 5; page 499, bracket 9)

vi) *generating root code for the hierarchy in architecture description language format based on said grouping* (page 499, bracket 9; implicit patterns; page 497, bracket 6)

vii) *cycling through each group to generate detailed code in architecture language format* (necessary in order to build a complete machine description)

viii) *repeating said cycling step until the end of the opcode summary table is reached* (necessary in order to build a complete machine description)

ix) *closing said plurality of output files* (the files must be closed at the end)

Ramsey did not explicitly state the method being computerized or in other words automated without a programmer. Gupta demonstrated that it was known at the time of invention to "computerize" a method of reading opcode tables to produce a description language (Gupta: column 4, line 65 to column 5, line 27; column 3, lines 49-54). It would have been obvious to one of ordinary skill in the art at the time of invention to implement Ramsey's ADL with the automated/computerized reading of the opcode table to produce the description language code as found in Gupta's teaching. This implementation would have been obvious because one of ordinary skill in the art would

be motivated to produce automated descriptions to reduce design time (Gupta: column 3, lines 32-37).

In regard to claims 5 and 6, the claims are corresponding to claims 2 and 3, respectively, and only differing in the claim to which they depend. The independent claims have been rejected in the same manner and therefore claims 5 and 6 are rejected the same way as claims 2 and 3 above.

In regard to claim 7, Ramsey disclosed the limitation *where the opcode summary table is pre-formatted such that the opcodes are separated into groups prior to being read* (page 499, bracket 9).

In regard to claim 8, Ramsey and Gupta did not explicitly state the limitation *where said cycle step further comprises determining the presence of sub-groups within said group and generating detailed code for each sub-group within said group*. This step is implied, however, by Ramsey by page 497, bracket 5's mention of hierarchy of tables and page 499, bracket 9's groupings and implicit patterns. It would have been obvious to one of ordinary skill in the art at the time of invention to implement Ramsey with finding any similarities and thus groups and therefore subgroups within a hierarchy (groups being disclosed on page 499, bracket 9). This implementation would have been obvious because one of ordinary skill in the art would be motivated to make the most use of grouping implicit patterns and hierarchies of instructions, in order to logically process in

as efficient manner as possible a large group of instructions/opcodes. Logically defining the instructions as such provides for an easy way to maintain the tables of opcodes.

In regard to claim 9, Ramsey disclosed the limitations:

i) *a first computer code section for reading an opcode summary table having a plurality of entries representative of a like plurality of microprocessor instructions* (page 496, bracket 3)

ii) *a second computer code section for producing a group of at least two of said entries in accordance with a grouping criteria* (page 497, bracket 5; page 499, bracket 9)

iii) *a third computer code section for generating an encoded representation of said grouping* (page 499, bracket 9)

Ramsey did not explicitly state the above steps being taken by a computer program. Gupta demonstrated that it was known at the time of invention to "computerize" a method of reading opcode tables to produce a description language (Gupta: column 4, line 65 to column 5, line 27; column 3, lines 49-54). It would have been obvious to one of ordinary skill in the art at the time of invention to implement Ramsey's ADL with the automated/computerized reading of the opcode table to produce the description language code as found in Gupta's teaching. This implementation would have been obvious because one of ordinary skill in the art would be motivated to produce automated descriptions to reduce design time (Gupta: column 3, lines 32-37).

7. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanono et al. "ISDL: An Instruction Set Description Language for Retargetability" in view of Ramsey et al., "Specifying Representations of Machine Instructions".

In regard to claim 10, Hanono disclosed the limitations:

- *A computerized method for producing code in an architecture description language* (page 2, section III, lines 1-2)

Hanono did not explicitly state:

- *reading an opcode summary table;*
- *analyzing said opcode summary table to determine the layout of said opcode summary table and constructing an opcode super group based on at least two opcode groups identified by said analyzing; and*
- *generating code for an instruction in architecture description language format based on said opcode super group.*

Ramsey demonstrated that it was known at the time of invention to provide opcode summary tables for a processor (page 497, bracket 5). Ramsey demonstrated that it was known at the time of invention to develop hierarchies of tables and provide groupings and patterns (Ramsey by page 497, bracket 5's mention of hierarchy of tables and page 499, bracket 9's groupings and implicit patterns). It would have been obvious to one of ordinary skill in the art at the time of invention to implement Hanono's system of generating an ISDL model via CAD with the ability to read an opcode table and analyze super groups (or subgroups for that matter, both deriving from hierarchies

of instruction tables) to generate the code as found in Ramsey's teaching. This implementation would have been obvious because one of ordinary skill in the art would be motivated to provide a system, which reduces the effort required by a programmer or developer. Additionally, a super or sub grouping of opcodes provides an efficient manner in which to display or organize a large group of information, which has varying degrees of similarities.

In regard to claim 11, Hanono disclosed the limitations:

- *A computerized method for producing code in an architecture description language format* (page 2, section III, lines 1-2)

Hanono did not explicitly state:

- *reading an opcode super group table;*
- *creating a plurality of output files;*
- *analyzing said opcode super group table to determine a layout of said opcode super group table;*
- *determining a presence of a sub-group from said opcode super group table; generating root code in architecture description language format based on the sub-group;*
- *cycling to generate detailed code for the sub-group in architecture description language format;*
- *repeating said cycling and determining until the end of the opcode super group table is reached; and*

- *closing said plurality of output files.*

Ramsey demonstrated that it was known at the time of invention to provide opcode summary tables for a processor (page 497, bracket 5). Ramsey demonstrated that it was known at the time of invention to develop hierarchies of tables and provide groupings and patterns (Ramsey by page 497, bracket 5's mention of hierarchy of tables and page 499, bracket 9's groupings and implicit patterns). It would have been obvious to one of ordinary skill in the art at the time of invention to implement Hanono's system of generating an ISDL model via CAD with the ability to read an opcode table and analyze super groups (or subgroups for that matter, both deriving from hierarchies of instruction tables) to generate the code as found in Ramsey's teaching. Furthermore, one would obviously cycle through the tables in their entirety in order to accurately generate code for all the instructions. This implementation would have been obvious because one of ordinary skill in the art would be motivated to provide a system, which reduces the effort required by a programmer or developer. Additionally, a super or sub grouping of opcodes provides an efficient manner in which to display or organize a large group of information, which has varying degrees of similarities.

Hanono and Ramsey did not explicitly state creating and closing a plurality of files. Official Notice is taken that it was known at the time of invention to create and close files. It would have been obvious to one of ordinary skill in the art at the time of invention to implement Hanono and Ramsey's ADL system with creating and closing a plurality of files. This implementation would have been obvious because one of ordinary

skill in the art would be motivated to provide the software with the ability to perform normal functions (i.e. file functions). Files are useful for retrieving and storing information such as tables or generated code for later use.

In regard to claim 12, Hanono and Ramsey disclosed the limitations of the claim as noted above under claims 10 and 11. Claim 12 is a program for performing the computerized methods disclosed and possesses limitations as such.

Examiner's Response

8. Applicant's arguments filed 11 March 2003 have been fully considered but they are not persuasive. Applicant argues the SLED of Ramsey is not an ADL (Architectural Description Language). Examiner disagrees, SLED is an ADL. Applicant states the SLED is functionally *inverse* to an ADL (page 8, last paragraph). However, an ADL is a language (general representation), which describes hardware (specific). SLED is also a way to use a general construction to describe hardware (Ramsey, abstract, line 6, "SLED is suitable for describing both CISC and RISC machines..."). Furthermore, Applicant indicates and ADL is often used to aid in construction other applications (11 March 2003 Amendment: page 7, fourth quoted paragraph and last paragraph). SLED is also used in aiding other applications, which may processes machine code (Ramsey, Abstract, lines 2-4). SLED and ADL are both high-levels of abstraction than the actual machine code.

9. Applicant's additional arguments filed 11 March 2003 have been fully considered but they are not persuasive. Applicant argued Gupta does not indicate *automating* the

processing of a general description to produce a specific. Examiner disagrees. Gupta clearly indicates using general architecture descriptions to produce a specific hardware (column 3, lines 40-41; column 3, lines 49-54; column 5, lines 9-18). Furthermore, merely using a computer to automate a known process does not by itself impart nonobviousness to the invention. See Dann v. Johnston, 425 U.S. 219, 227-30, 189 USPQ 257, 261 (1976); In re Venner, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958). (MPEP 2106).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Wood whose telephone number is (703)305-3305. The examiner can normally be reached 7:30am - 5:00pm Monday thru Thursday and 7:30am - 4:00pm every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703)305-9662. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-7239 for regular communications and (703)746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

William H. Wood
May 28, 2003

KAKALI CHAKI
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